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## Literature-based language arts extended to the science area : a unit on spring

Kelly Jones

*University of Northern Iowa*

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## Literature-based language arts extended to the science area : a unit on spring

### Abstract

A literature-based program emphasizes creating meaning through the language processes, thus leading to growth in thinking and language abilities. A print-rich learning environment supported by the different genres encourages involvement in the language process and contributes to the dimensions of a unit of study. When literature-based language arts are extended to the science area, such a program can extend children's knowledge of the world around them and nurture their curiosity.

A science unit on spring, extended through quality literature and many options for expressive activity, was presented to first grade children. This literature-based unit is shared.

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June 1, 2001  
Date Approved

Jeanne McLain Harms  
Jeanne McLain Harms  
Director of Research Project

June 1, 2001  
Date Approved

Jeanne McLain Harms  
Jeanne McLain Harms  
Graduate Faculty Adviser

June 1, 2001  
Date Approved

Rick Traw  
Rick Traw  
Graduate Faculty Reader

June 1, 2001  
Date Approved

Rick Traw  
Rick Traw  
Head, Department of Curriculum  
and Instruction

Literature-Based Language Arts Extended to the Science Area:

A Unit on Spring

A Graduate Project

Submitted to the

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UNIVERSITY OF NORTHERN IOWA

by

Kelly Jones

May 2001

## Abstract

A literature-based program emphasizes creating meaning through the language processes, thus leading to growth in thinking and language abilities. A print-rich learning environment supported by the different genres encourages involvement in the language process and contributes to the dimensions of a unit of study. When literature-based language arts are extended to the science area, such a program can extend children's knowledge of the world around them and nurture their curiosity.

A science unit on spring, extended through quality literature and many options for expressive activity, was presented to first grade children. This literature-based unit is shared.

Language is a process to create meaning. Children's literacy is promoted by engaging the language processes within the functions of language. A quality literature-base representative of the different genres provides meaningful language experiences, models of language and reasons to interact with others. As a result, children's personal-social abilities as well as their thinking-language abilities are developed (Goodman, 1986; F. Smith, 1994; Harms & Lettow, 1998; Roser & Martinez, 1995).

A print-rich learning environment can provide children with many opportunities for learning. The related expressive activities can be teacher-directed and student-initiated. The latter can be included in learning centers that present many options for learning (Harms & Lettow, 1998).

#### Literature-Based Language Arts Extended Across the Curriculum

A literature base can strengthen the learning in any area of the curriculum (Routman, 1991). Incorporating different genres into a study add to its dimensions (Langer, 1995). Ideas generated from the base can promote expressive activity through language and the graphic and performing arts that can be shared with others. As a result of this activity within the functions of language, in-depth learning can occur (Harms & Lettow, 1998). Such a program can encourage children to become independent and collaborative readers and writers (Routman, 1994; Harms & Lettow, 1998).

## Value of a Literature Base in Science

Elementary science instruction can open up the world of discovery for children. Experiences with quality literature, representative of the different genres, can strengthen science study (Langer, 1982). A literature base extended across the curriculum can provide in-depth learning experiences (Bosma & Guth, 1995).

Integrating a rich literature base into the science curriculum can offer many meaningful language experiences through a narrative form of writing for children (Routman, 1994). Science can be abstract for children when offered through an informational form in a textbook. If they are able to develop understandings, they must be able to see science concepts as part of their own personal world (Butzow & Butzow, 1989).

### Implementation of a Literature Base to Integrate the Language Arts and Science Areas

While teaching first grade, I incorporated literature-based language arts into a science unit on spring. In the study, the following spring concepts were explored: weather, outdoor activities, and seasonal change. These concepts were presented by teacher-directed and through student-initiated activities.

### Teacher-Directed Activities

The unit on spring was introduced to the children as a whole group. The ideas that children had about spring were listed on a large sheet of chart paper. A student or the teacher made a related illustration next to each concept to help with clues for reading. The vocabulary that represented these concepts listed on the chart could be used by the students as ideas for writing and prompts for correct spelling. The children referred a great deal to this list as they wrote in their journals. (The journals were made of lined paper with room for illustrations. They were housed in a particular place in the classroom that was easily accessible to the children. Much journal writing was done during the unit on spring.)

The teacher read the story, Spring Days, by Harold Roth (New York: Grosset & Dunlap, 1986). This book contains text and photographs describing children enjoying different springtime activities. The class then found magazine pictures and photographs of spring to create a class collage.

To further promote the concept of spring, the teacher introduced many activities associated with the strands – weather, outdoor activities, and seasonal changes.

### Weather

The goal of the weather strand was to assist the children in recognizing the environmental changes in spring, such as temperature and amount of



rain. The children were presented different forms of literature on weather.

Poetry related to spring weather was presented on chart sheets. The teacher and the students read them aloud (see Appendix A for the poem titles).

The teacher read aloud, Weather Words and What They Mean, by Gail Gibbons (New York: Holiday House, 1990). This informational book gives weather related concepts. After reading the story, the teacher and the class discussed the vocabulary that was related to spring. The class then set up a weather station that was used to measure the amount of rainfall and the temperature. The materials that were used in constructing the weather station were a plastic thermometer and a rain gauge. A clipboard with a pencil and paper was placed in the weather station to use in recording the daily temperature and rainfall. The children took turns recording the weather information presented in the weather station.

The book, Rain, by Robert Kalan and illustrated by Donald Crews (New York: Scholastic, 1990), was read aloud by the teacher. After the reading, the children then created their own pictures of rain, using different media and types of paper to create different effects. Some children chose to spray water on their pictures to see what would happen.

After the read-aloud experience with Wind, by Ron Bacon and illustrated by Philipa Stichbury (New York: Scholastic, 1984), the children experimented with wind by using a hair dryer to represent the wind. The children found objects around the room and then placed them in front of the wind to see if they would remain stationary or if they would move. The observations of the movements of their selected objects were noted in their journals.

### Outdoor Activities

The goal for this strand was for children to experience many different outdoor activities during spring weather. The teacher read aloud Planting a Rainbow, by Lois Ehlert (New York: Trumpet, 1992). After hearing the story, the children discussed the materials needed to plant flowers. After gathering the materials needed for planting, they went outside to the flowerbed located in front of the school, and each child planted a flower. The students took turns watering the flowers as the weeks progressed. They charted the progress of the flowers in their journals.

The riddle poem, "An Umbrella," by Myra Cohn Livingston, from My Head is Red and Other Riddle Poems (New York: Holiday House, 1990) was introduced. The children were asked to bring umbrellas to school and then went outside and had an umbrella parade. The poem was also placed in the poetry center.

To initiate a walk outside in the spring, the story, *One step, two...*, by Charlotte Zolotow (New York: Lothrop, 1981) was read aloud by the teacher. In this story, a young child takes her mother for a walk and points out many concepts of nature that can be observed by listening carefully. Then, the class went outside and took a listening walk. When they returned, they discussed the sounds that were heard and suggested where they came from and if their sounds can only be heard in the springtime. They also illustrated a sound and where it comes from in their journals.

These books, *Growing Vegetable Soup*, by Lois Ehlert (New York: Scholastic, 1992) and *Eating the Alphabet*, by Lois Ehlert (New York: Scholastic, 1989) were read aloud followed by a discussion of planting fruits and vegetables and their growing cycles. This discussion led to a tasting party. Afterwards, the children wrote about the experience in their journals.

The book, *The Garden in Our Yard*, by Greg Quinn and illustrated by Lena Shiffman (New York: Scholastic, 1995), was read aloud with copies and accompanying tapes placed in the Listening/Reading Center for further listening/reading experiences.

### Seasonal Changes

The goal for this strand was for the children to observe, discuss, and differentiate among the seasons, focusing particularly on spring. Expressive activities were introduced after read-aloud experiences.

The teacher read aloud the book, The Four Seasons For Little People, by Joseph Parramon and illustrated by Ulises Wensel, Asun Balzola, and Crme Sole Vendress (New York: Delair, 1982). The children worked in cooperative groups to sequence illustrations of the four seasons and did an activity associated with each season. The illustrations of the seasons included for spring a garden scene with flower buds and a person planting, for summer a beach scene and someone in the water, for the autumn a scene of leaves turning and someone raking, and for winter scene bare trees and falling snow and someone building a snowman.

The children read, The Tiny Seed, by Eric Carle (New York: Scholastic, 1987), and then discussed the phases of a seed as it grows. The children's responses were listed on chart paper.

These poems, by Myra Cohn Livingston from a Circle of Seasons (New York: Holiday House, 1982), were read aloud to the children from wall charts:

"Spring skips lightly on a thin crust of snow"

"Spring pipes at the peeper frogs"

"Spring brings out her baseball bat"

"Spring skips lightly"

Typed copies of these poems were placed in the poetry center.

### Student-Initiated Activities

Learning centers were provided to extend the children's learning experiences. The sustaining centers were maintained throughout the school year to offer a secure, predictable learning environment with their content changing to reflect a specific unit study. Other centers offered experiences particular to a unit.

#### Sustaining Centers

These sustaining centers were offered in the classroom: Reading/Listening, Poetry, Author/Illustrator, Interesting Objects, and Bookmaking.

- Reading/Listening Center

This center presented many books representative of the strands of the unit study on spring along with teacher-made cassette tapes. (See Appendix B)

- Poetry Center

A selection of poems from several books was presented in this center.

The teacher introduced the poems aloud to the class. Then, the poems were placed around the room on chart paper. Copies of the poetry also were placed in booklets in the poetry center. (See Appendix A)

- **Author/Illustrator Center**

Lois Ehlert was the featured author/illustrator for the spring study.

This author/illustrator has written and illustrated books on plants, one of the topics in the unit of spring. Biographical information accompanied her books in the center.

Ehlert, L., (1990). Color farm. New York: Scholastic.

Ehlert, L., (1989). Eating the alphabet: Fruits and vegetables from A to Z. New York: Scholastic.

Ehlert, L., (1993). Feathers for lunch. New York: Trumpet.

Ehlert, L., (1992). Growing vegetable soup. New York: Scholastic.

Ehlert, L., (1992). Planting a rainbow. New York: Trumpet.

Scraps were placed in this center, such as fabric, paper, magazine and newspaper scraps. The children were asked to complete a spring picture, using the medium, collage, which Lois Ehlert uses in many of her illustrations.

- **Interesting Objects Center**

Objects related to experiences gained through the five senses in the spring were placed in this center. The objects included flower seeds, scented oils in jars, edible seeds, and edible flowers. Other objects exhibited were a rain stick, along with child-safe garden tools, and dirt. Photographs of spring concepts were also placed in this center.

- **Bookmaking Center**

The teacher prepared pages for the students to illustrate. The book pages were in the shape of a flower. Students illustrated a page depicting their favorite part of spring. The pages were then bound and placed in the listening/reading center.

### **Centers Specific to the Unit**

These literature-based centers with related expressive activities were used to extend the strands of the unit on spring. The standards are listed in Kendall and Marzona (1997).

- **Seasonal Photographs**

Science Standard: Understands basic features of the earth (K-2)

Language Arts Standard: Relates new information to prior knowledge and experience (K-2)

#### **Literature Experience:**

Listen to/read, The Four Seasons!, by Ruth Thomson (Milwaukee: Stevens, 1985).

#### **Expressive Activity:**

View and sort pictures of each season and place them in appropriate categories.

**Student Response:** The students enjoyed viewing the photographs. They commented about the differences that were seen in the trees. One child wanted to know why the evergreen tree looked the same in each photograph.

- **Outdoor Activities**

**Science Standard:** Knows that learning can come from careful observations (K-2)

**Language Arts Standard:** Summarizes information found in texts (K-2)

**Literature Experience:**

Listen to/read, Spring Days, by Harold Roth (New York: Grosset & Dunlap, 1986).

**Expressive Activity:**

Use different material to create a collage as Lois Ehlert has done in some of her works.

**Student Response:** The collages that the children made were fantastic.

Many of the children used Lois Ehlert's books as guides for their own artwork. The children became involved in discussions of the illustrations viewed in the books. Many children wondered what materials she used.



- **Spring Sort**

**Science Standard:** Knows that short-term weather conditions can change daily, and weather patterns change over the seasons (K-2)

**Language Arts Standard:** Makes contributions in class and group discussions (K-2)

**Literature Experience:**

Listen to/read, In Spring, by Jane Moncure (Chicago: Children's, 1985).

**Expressive Activity:**

Sort the items representing winter and spring into two categories. (The items were made of cardstock and laminated.) The winter items included a snowflake, shovel, mittens, and a bare tree. The spring items included flowers, seeds, garden tools, and gardening gloves.

**Student Response:** Children had fun finding the appropriate category for each item. They discussed the uses of the items and if they had them at home. One child stated that he wanted to plant flowers. He was going to ask his mom to get him garden tools and gloves, because he knew they would help the flowers grow better.

- Lifecycle of a Tree

Science Standard: Knows that plants and animals have features that help them live in different environments (K-2)

Language Arts Standard: Asks and responds to questions (K-2)

Literature Experience:

Listen to/read, A Busy Year, by Leo Lionni (New York: Knopf, 1985).

Expressive Activity:

Decorate each of the four trees to represent one of the four seasons and then arrange them in the cycle of the year.

Student Response: When the children first started, they wanted to know what kind of tree they should make. The children discussed the characteristics of trees in the different seasons. One child stated that she wanted to make an evergreen tree, because it would look the same on each page. Another child wondered why some trees had flowers and others did not. A little girl wanted to know why some trees had red leaves and some had orange in the fall.

### Conclusions

With the amount of quality literature that is available to extend a literature base in most areas of the curriculum, a print-rich learning environment can usually be developed. As a result, many options for learning experiences can be offered to the students. Many connections

can be made to their prior knowledge, thus expanding their knowledge base. They can become more involved in their own learning and truly own their learning experiences.

In my first-grade classroom, this science unit on spring enriched the students' knowledge. The many activities energized the children. As a result, they were actively involved in learning.

In the future, I will create a unit for each of the other three seasons. I will also expand the unit on spring as new quality literature is discovered.

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- Routman, R. (1991). Invitations. Portsmouth, NH: Heinemann.
- Smith, F. (1994). Understanding reading, (5<sup>th</sup> ed.). Hillsdale, NJ: Erlbaum.

## Appendix A

### Bibliography for Poetry

#### Poetry Center

Brown, M. Nibble, Nibble. New York: Young Scott.

"How do you know it is spring?"

George, K. (1997). The great frog race. New York: Clarion.

"Spring wind"

Graham, J. (1994). Splish, Splash. New York: Ticknor and Fields.

"Rain"

Janeczko, P. (1990) The place my words are looking for. New York:

Simon & Schuster.

"Spring Thaw"

Livingston, M.C. (1982). A circle of seasons. New York: Holiday House.

"Spring skips lightly"

"Spring pipes at the peeper frogs"

"Spring brings out her baseball bat"

"Spring skips lightly"

Livingston, M.C. (1990). My head is read and other riddle poems. New

York: Holiday House.

"The rain"

"The umbrella"

Livingston, M.C. (1984). Sky Songs. New York: Holiday House.

"Rain"

"Coming storm"

Stevenson, J. (1999) Candy Corn. New York: Greenwillow.

"Early Spring"

## Appendix B

### Bibliography for Sustaining Centers

#### Weather

Bacon, Ron. (1984). Wind. New York: Scholastic.

Barrett, Judi. (1978). Cloudy with a chance of meatballs. New York: Scholastic.

Gibbons, Gail (1990). Weather words and what they mean. New York: Scholastic.

Kalan, Robert, (1993). Rain. New York: Scholastic.

Rylant, Cynthia. (1987). Henry and mudge in puddle trouble. New York: Bradbury.

#### Outdoor Activities

Ehlert, Lois. (1989). Eating the alphabet. New York: Scholastic.

Ehlert, Lois. (1992). Growing vegetable soup. New York: Scholastic.

Ehlert, Lois. (1992). Planting a rainbow. New York: Trumpet.

Hoban, Lillian. (1978). Turtle spring. New York: Greenwillow.

Iwamura, Kazuo. (1991). The fourteen forest mice and the spring meadow picnic. Milwaukee: Stevens.

Krauss, Ruth. (1945). The carrot seed. New York: Scholastic.

Lambert, Matthew. (1994). My first spring. Austin, TX: Raintree Steck-Vaughn.

Rockwell, Anne. (1989). My spring robin. New York: MacMillan.

Roth, Harold. (1986). Spring days. New York: Grosset & Dunlap.

Zolotow, Charlotte. (1981). One step, two... New York: Lothrop.

### Seasonal Changes

Carle, Eric. (1987). The tiny seed. New York: Scholastic.

Delton, Judy. (1977). Three friends find spring. New York: Crown.

Forrester, Victoria. (1982). The touch said hello. New York: Atheneum.

Hirschi, Ron. (1990). Spring. New York: Scholastic.

Holl, Adelaide. (1977). Wake up small bear. Champaign: Garrard.

Kuskin, Karla. (1961). The bear who saw the spring. New York: Harper.

Lerner, Sharon. (1967). Who will wake up spring? Minneapolis: Lerner.

Lionni, Leo. (1992). A busy year. New York: Scholastic.

McNaughton, Colin. (1984). Spring. New York: Dial.

Minarik, Else H. (1989). It's spring. New York: Greenwillow.

Moncure, Jane. (1985). In spring. Chicago: Children's.

Parramon, Joseph. (1981). Spring. New York: Delair.

Parramon, Joseph. (1982). The four seasons for little people. New York: Delair.

Pfister, Marcus. (1992). Hopper hunts for spring. New York: Scholastic.

Schapp, Martha and Charles. (1963). Let's find out about spring. New York: Watts.

Thomson, Ruth. (1985). The four seasons! Milwaukee: Stevens.

Williams, Rozanne. (1994). The four seasons. Cypress: Creative Teaching Press.



Other

Alexander, Sue. (1987). There's more, much more. New York: Harcourt Brace.

Bunting, Eve. (1986). The mother's day mice. New York: Scholastic.

Carle, Eric. (1984). The very busy spider. New York: Philomel.

Carle, Eric. (1987). The very hungry caterpillar. New York: Philomel.

Carle, Eric. (1990). The very quiet cricket. New York: Philomel.

DeLuise, Dom. (1990). Charlie the caterpillar. New York: Simon & Schuster.

Ehlert, Lois. (1990). Color farm. New York: Scholastic.

Ehlert, Lois. (1993). Feathers for lunch. New York: Trumpet.

Selkove, Valerie. (1985). Spring green. New York: Lothrop.